III.REMARKS

1. Claims 1, 3 and 7 are not anticipated by Bares et al. ("Bares") under 35 USC 102(b).

Bare does not disclose or suggest at least the feature of a "loudspeaker with a non-flat frequency response" as is recited by Applicant in claim 1. Although Bare discloses, in Fig. 3, a frequency response plot for a typical human voice, this has nothing to do with the characteristics of a "loudspeaker" and is not the same as the "non-flat frequency response" characteristics of a loudspeaker as is claimed by Applicant. Thus, at least this feature is not disclosed or suggested by Bare.

Claim 1 recites a loudspeaker with a non-flat frequency response, an amplifier and an equalizer for at least partially compensating the non-flat frequency response of said loudspeaker through frequency selective attenuation, characterized by comprising means for decreasing said frequency selective attenuation to increase the volume of the sound reproduced by said loudspeaker when a maximum amplification by said amplifier has already been reached. Each and every one of these features is not disclosed or suggested by Bares, as is required in order to establish a *prima facie* case of anticipation under 35 USC §102(b).

As noted above, Bares does not disclose or suggest at least the feature of a "loudspeaker with a non-flat frequency response" as recited in claim 1. Bares also does not disclose or suggest at least the feature of "an equalizer for at least partially compensating the non-flat frequency response of said loudspeaker through frequency selective attenuation." Bares discloses that "frequency selective attenuation" can be applied to a signal at a volume threshold (thus switching filter 408 into an active mode) in order to reduce the amplitude level of part of a signal, in particular to reduce the amplitude level of peak 302 of Fig. 3 (See e.g. Col. 5, lines 3-7). This is to avoid driving the amplifier 410 into clip so that a further increase in volume threshold to increase the amplitude levels of peaks 304 and 306 is possible without causing too much distortion. Thus, although Bares discloses frequency selective attenuation, there

is no disclosure related to an "equalizer" for at least "partially compensating the non-flat frequency response of said loudspeaker" as is recited by Applicant in the claims.

Furthermore, Bares does not disclose or suggest "decreasing said frequency selective attenuation to increase the volume of the sound reproduced by said loudspeaker when a maximum amplification by said amplifier has already been reached" as is recited in claim 1. Bares is only concerned with frequency selective attenuation to reduce distortion and does not make any disclosure that frequency selective attenuation can be decreased in order to increase the volume of the sound reproduced by the loudspeaker when a maximum amplification by said amplifier has already been reached as is recited by Applicant in the claims. Applicant's claimed subject matter provides the advantage, not heretofore seen, of being able to increase the volume of sound reproduced by a loudspeaker, even when a maximum amplification of the sound reproduced by the amplifier has been reached. There is no such disclosure or suggestion in Bares.

The Examiner only refers to Fig. 4, and Col. 4, lines 11-45 of Bares in the rejection of claim 1. Fig. 4 is a block diagram of a speech amplifier circuit. The block diagram shows a demodulator, attenuator control, high pass filter control, microcomputer, speech amplifier, speaker, A/D converter and volume control. Col. 4, lines 11-45 only discloses that as volume control 414 is advanced beyond the minimum clipping level, the attenuator 406 increases the gain. Thus, a decrease in the perceived loudness at speaker 412 appears to smoothly and continuously increase as "volume control 414 is advanced. This is not the same as what it recited by Applicant in the claims. Thus, as noted above, Bares does not disclose in this section or elsewhere, each and every one of the features recited by Applicant in the claims. Therefore, a *prima facie* of anticipation is not established and claim 1 is patentable over Bares.

Claim 3 is not anticipated at least by reason of its dependency. Also, claim 3 recites that the "frequency selective attenuation" is decreased by changing the characteristics of the "equalizer." There is no such disclosure in Bares. Again, Fig. 4 does not show a

"equalizer" as is claimed by Applicant. Col. 4, lines 11-45 only discloses that the decrease in the perceived loudness at speaker 412 appears to smoothly and continuously increase as "volume control 414 is advanced" after the speech amplifier 410 is at the minimum clipping level. This is not what is claimed by Applicant, and claim 3 cannot be anticipated.

Claim 7 is also not anticipated at least by reason of its dependency. Additionally, claim 7 recites that the means for adjusting the amount of said frequency selective attenuation are arranged to adapt the profile of the frequency response of the loudspeaker system increasingly to the hearing curve of the human ear, preferably as defined in ISO 226:1987, with decreasing volume setting. There is no such disclosure in Bares. Fig. 4 does not disclose this particular feature. Col. 3, lines 57-67 and Col. 4, lines 1-30 only discloses that when a low volume is selected, the gain is set to a pre-determined level. As the volume control is advanced, the gain increases by 0.25db. The step attenuator responds with similar increases until the minimum clipping level is reached. When the volume control advances beyond the minimum clipping level, the filter 408 is switched into the active mode in order to compensate for the perceived decrease in volume from the speaker. This is not the same as what is recited by Applicant in the claims. Thus, claim 7 is not anticipated.

2. Claims 11 and 13-14 are not anticipated by Koski under 35 USC §102(b) because each feature recited by Applicant in the claims is not disclosed or suggested by Koski.

Koski is directed to equalization of a speech signal in a mobile phone in order to improve the intelligibility of the transmitted speech. Applicant's claimed subject matter is directed to providing an optimum frequency response characteristic and a high obtainable maximum volume. Applicant's claims recite decreasing the frequency selective attenuation to increase the volume of the sound produced by the loudspeaker when a maximum amplification by the amplifier has already been reached. Koski only

discloses that when the volume setting is high, the equalization gain is decreased, and that when the volume setting is low, the equalization gain is increased.

Claim 11 recites a sound reproduction system for a mobile communication terminal comprising a loudspeaker with a non-flat frequency response, an amplifier and an equalizer for at least partially compensating the non-flat frequency response of said loudspeaker through frequency selective attenuation, characterized in that said audio system comprises means for adjusting the frequency response characteristic of said equalizer depending on the type of audio signal reproduced. These features are not disclosed or suggested by Koski.

In Koski, the control block 15 receives information about the position of the sound volume control. A loud volume setting makes the control block 15 decrease factor K, while a quiet volume setting makes the control block increase that same factor. (Col. 6, lines 15-22). The factor "K" corresponds to "equalization gain" in the filter construction. (Col. 5, lines 42-48.) What is not disclosed or suggested in Koski is an amplifier and an equalizer for at least partially compensating the non-flat frequency response of said loudspeaker through frequency selective attenuation, characterized in that said audio system comprises means for adjusting the frequency response characteristic of said equalizer depending on the type of audio signal reproduced as recited in claim 11. All that Koski discloses in Col. 5, lines 3-35 is that the frequency response of the equalizer may vary in many ways and that signal components at certain frequencies are amplified or attenuated according to existing environmental and operating conditions. Col. 5, lines 31-32 states that the operations are performed in the normal voice frequency area. Col. 6, lines 20-22 states that a quiet volume setting makes the control block increase that same factor. This is not the same as what is claimed by Applicant, and claim 11 is not anticipated.

The Examiner alleges that the feature in claim 11 of "means for adjusting the frequency response characteristic of said equalizer depending on the type of audio signal

reproduced" is disclosed in Koski in Col. 5, lines 3-17. However, what is disclosed by Koski is that the "DSP block 1 includes a control block 15 the main task of which, as regards the present invention, is to control the equalizer 4 so that signal components at certain frequencies are amplified or attenuated according to existing environmental and operating conditions. The operation of the control block 15 is based on control parameters which are brought to the control block 15 as input data. All control parameters somehow describe the environmental and operating conditions of the mobile phone. FIG. 2 shows as input data for the control block 15 four control parameters which are: information 16 representing the quality of the radio connection, background noise estimate 17 based on measurement of ambient noise level, information 18 describing the auxiliaries connected to the phone, and the phone volume 19 set by the user."

It is clear that in Koski, the equaliser 4 is controlled by the control block 15, which is itself controlled by control parameters which describe the environmental and operating conditions of the mobile phone, in particular:

a) information 16 representing the quality of the radio connection;

b) background noise estimate 17 based on measurement of ambient noise level;

c) information 18 describing the auxiliaries connected to the phone; and d) the phone volume 19 set by the user.

None of these control parameters a) to c) are the same as or equivalent to "the type of audio signal reproduced" as is recited by Applicant in the claims. Thus, Koski does not disclose or suggest each of the features recited in claim 11, and claim 11 is not anticipated.

Claims 13 and 14 are not anticipated at least by reason of their dependencies.

3. Claims 2 and 4-5 are not unpatentable over Bares under 35 USC §103(a). As noted above, Bares does not disclose or suggest each feature recited by Applicant in claim 1. Claims 2 and 4-5 are unpatentable at least for the same reasons. Also, Applicant's claimed subject matter provides advantages not heretofore seen, and in particular the advantages of being able to increase the volume of sound reproduced by a loudspeaker, even when a maximum amplification of the sound reproduced by the amplifier has been reached. There is no such disclosure or suggestion in Bares.

Bares teaches how to apply frequency selective attenuation in order to limit the amount of distortion that is caused. However, within the context of Bares, if the frequency selective attenuation (to reduce the amplitude level of peak 302 of Figure 3 (column 5, lines 3 to 7)) were to be decreased (see the relevant feature of claim 1) then this could result in more distortion being introduced into the output of the speaker 412 of Bares. From this it can be seen that claim 1 recites features which are contrary to the teaching of Bares. It is respectfully submitted that it would not be obvious for the skilled person to modify Bares to achieve Applicant's claimed subject matter. Furthermore, even if the Examiner argues that for some reason the skilled person would make such a hypothetical modification, this would still not naturally lead to the introduction into this hypothetical modification the other differences identified above, which exist between claim 1 and the disclosure of Bares. Thus, claims 2 and 4-5 are not unpatentable.

4. Claim 12 is not unpatentable over Koski under 35 USC §103(a) at least by reason of its dependency on claim 11. Koski discusses in detail the control parameters a) to d), in for example in Cols. 6, 7, 8, and 9. However, there is no disclosure in Koski related to using "the type of audio signal reproduced" as a parameter in any control operation as is recited in claims 11 and 12. Furthermore, there is no disclosure or suggestion that such a parameter may be so employed. Since each and every element recited by Applicant in claim 12 is not disclosed or suggested by Koski, claim 12 cannot be obvious over Koski and claim 12 is patentable.

5. Claim 15 is not unpatentable over Koski in view of Kirkeby under 35 USC §103(a) at least by reason of its dependency.

6. Claim 16 is not unpatentable over Koski in view of Fincham under 35 USC §103(a) at least by reason of its dependency.

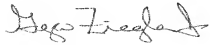
7. Claim 17 is not unpatentable over Koski and Umemoto under 35 USC §103(a) at least be reason of its dependency.

8. Claims 6 and 18-20 are unpatentable over Bares in view of Koski at least by reason of their respective dependencies. As noted above, neither Bares nor Koski discloses each and every feature recited by Applicant in the claims. It is submitted that the combination of the two references does not overcome the noted deficiencies with respect to each. Thus, the combination cannot disclose and suggest each and every element recited by Applicant in claims 6 and 18-20.

For the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record, and are in proper form for allowance. Accordingly, favorable reconsideration and allowance is respectfully requested. Should any unresolved issues remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

The Commissioner is hereby authorized to charge payment for any fees associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,



27 September 2009

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